

SECURE FLIGHT

W507 by WIKES RC

As the complexity of RC aircraft designs increase so does the need for a highly reliable current path for multiple servos. WIKES RC's SECURE FLIGHT (SF) provides 20 Amps of continuous power to ensure that your flight surfaces and controls do not suffer low voltage brown outs and loss of control of your aircraft.

Heavy duty JR, Hitec, Futaba connectors can only deliver 3 Amps, SF solves this problem by providing 2 high amp Deans style connectors, which can safely provide all the power you need for multiple or high current servos. SF is designed to provide JR, Hitec, Futaba compatible



connections to four outputs channels 1,2,5,6 and two outputs channels 3,4,6,7. Each bank of outputs has their own servo connection so they are compatible with all receivers.

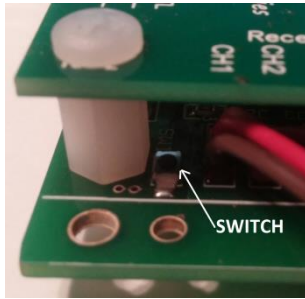
SF's on/off switch provides complete control of your power system providing 2 unique features; it does not carry high currents for your system and if it becomes unplugged in flight power is still provided to your receiver and servos. The safety switch system consumes <10 micro amps (uA). This is equal about 50mAH of battery drain per year. So it is not necessary to unplug the batteries from the SF between flying sessions. If a plane is going to be stored for long periods of time we recommend that you unplug the batteries.

SF protects and powers your receiver with a regulated 5V supply providing up to 3 amps of current. If high voltage servos are being used the SF will deliver battery volts - 0.2V to them while providing 5 volt supply for standard servos connected to your receiver.

SF dual battery management safely draws power from two batteries of the same type. The battery with the highest charge provides power until they are equalized then current is equally drawn from both batteries. Batteries are isolated so if one battery becomes damaged or fails it is eliminated from the circuit and will not short out or drain the other battery. Two banks of four LEDs indicate the condition of each battery. SF supports 2-cell Li-Ion, Li-Fe, Li-PO, or A123, 5 cell Ni-Cd or Ni-Mh, and 4-cell Ni-Cd or NiMh. If dual batteries are used they are required to be the same type but they don't have to be the same size. Example: 1100mAh and 2200mAh.

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PROGRAMMING BATTERY TYPE:



Battery Type is programmed via momentary push button switch next to channel 1 receiver connection and the nylon support on the lower deck. Led SET 1,2,3 or 4 will flash to indicate the battery type programmed. Setting the battery type allows the Secure Flight to monitor the battery and indicate the whether the batteries need charging. Use common sense and ensure your batteries are sufficiently charged prior to flight.

PROGRAMMING:

1. Press and hold the programming button/switch while turning the power on then release it after power is on.
 - a. LEDs will flash to indicate the battery type currently selected
 - b. The led will be on as long as the voltage stays above the voltage listed in the chart below
 - c. When programming the battery type the led set will flash as follows
 - i. LED SET1 GREEN - 2-cell LiPo
 - ii. LED SET2 GREEN -2-cell A123
 - iii. LED SET3 YELLOW -5-cell Ni-mh
 - iv. LED SET4 RED - 4-cell Ni-mh/cd



- LED SET1 GREEN
- LED SET2 GREEN
- LED SET3 YELLOW
- LED SET4 RED

2. Cycle the power off then on exits programming
3. The SF will indicate your current voltage as shown here

BAT TYPE	2-cell LiPo	2-cell A123	5-cell Ni-mh	4-cell Ni-mh/cd
Green LED 1	> 8.0 V	> 6.5 V	> 6.0 V	> 5.0 V
Green LED 2	> 7.8 V	> 6.4 V	> 5.8 V	> 4.7 V
Yellow LED 3	> 7.6 V	> 6.2 V	> 5.6 V	> 4.5 V
Red LED 4	> 4.0 V	> 4.0 V	> 4.0 V	> 3.2 V

Note No LEDs on below red Voltage

FOLLOW THE MANUFACTURERS RECOMMENDATIONS DURING USE AND CHARGING OF BATTERIES.

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MOUNTING OPTIONS:

1. Rigid Mount using the 4 mounting holes provided. Cut a ¼" piece of fuel tubing and use screws to mount to a solid bulkhead. The tubing allows for some vibration protection and allows a stand off from the mounting surface for cooling of the SF.
2. Double sided tape or Velcro, can be used on the bottom of the SF. When using this method check the adhesive for dielectric strength. Using an OHM meter set on a 2k to 100k scale place the two probes 1/16 apart in the adhesive. If the ohm meter shows an open circuit the Double sided tape or Velcro is ok to use. If it shows a resistance value do not use the product
3. Foam and Tie wrap: Foam can be used under the SF. Using an OHM meter set on a 2k to 100k scale place the two probes 1/16 apart in the foam. If the ohm meter shows an open circuit the foam is ok to use. If it shows a resistance value do not use the product. Use the foam on the bottom side of the SF only. The top Plate is used as cooling and must be exposed to the air.

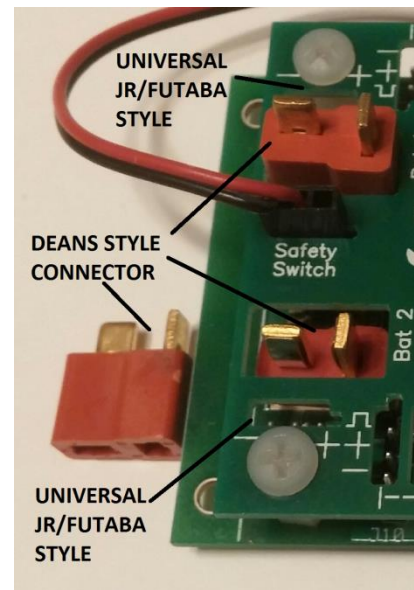


BATTERY CONNECTIONS:

Batteries connections are provided via the high current connector or the standard connector. Ground on all connectors is to the outside of the board and is indicated by a minus sign "-".

Two powering options are available:

1. Heavy duty DEANS style connectors good to 20 amps each
2. JR, Hitec, Futaba good to 3 amps each. If you exceeded 3 amps per connector you will reduce the life of the connection. When new the connector can provide up to 8 amps, but operating at this level will degrade the connection and cause power brownouts over time. If you plan to exceed the 3 amp threshold use the DEANS style connectors.



Installation:

Extensions can be used on the safety switch. For all connections battery (-) minus (typically brown or black) goes toward the edge of the board and battery plus (+) is in the middle and signal is toward the center of the board.



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WARNING: Output Channels on the top plate 1 through 8 provide power to your servos at battery voltage. If you have a 7.4V battery plugged in and connect a servo rated for 6V you may damage it

DO NOT EXCEED YOUR SERVO'S MAX VOLTAGE.

RECEIVER CONNECTIONS:

1. Eight wires coming from the SF connect to the receiver. Each Receiver Connection lead is numbered on the SF top plate and can be used in any receiver channel. SF channel 1 through 8 can be connected to any receiver channel. So channel 1 of the Secure Flight does not have to be connected to Channel 1 of the receiver.
2. The receiver wire connections provide a regulated 5V 3 amps to the receiver
3. The signal produced by your receiver is amplified and distributed to the numbered output on the top plate of the Secure Flight. In this example channel 5 receiver is connected to channel 1 of the secure flight. Providing power at the incoming battery voltage to the 4 servos connected to the SF channel 1 output connections on the top plate of the Secure Flight.
4. Unused receiver inputs from the SF can be left disconnected.



Input Voltage Range: 4.8 – 10 Volts , Servo Output Voltage: Input voltage minus 0.2-0.3 volts
Total output Current: 20 amps continuous
Receiver output Voltage: 5.0Volts +/- 5%, Receiver output Current: 3.0 Amps Max
Temperature Range: -40 to 85 deg C (-40 to 185deg F)
Parts and workmanship warranty 180 days.

Always perform range test prior to flight